

ABSTRACT OF THE DISCLOSURE

A process for removing at least water and carbon dioxide from a feed gas stream
5 of air, synthesis gas or natural gas is described, comprising the steps of: contacting the
feed gas stream with a composite adsorbent comprising silica and metal oxide, wherein
the composite adsorbent contains at least 50 wt% silica, to form a first purified gas
stream, and regenerating the composite adsorbent at a temperature of 0 to 200 °C. The
process optionally further comprises contacting the first purified gas stream with a
10 carbon dioxide adsorbent and/or a nitrous oxide or hydrocarbon adsorbent.